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Editorial

High-Performance Computing Strategies for Complex Engineering Optimization Problems

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Managing computational effort (CPU time, memory, and interfacing) is a major issue in engineering design optimization problems due to the cost of the high-fidelity numerical simulations (finite elements, finite volumes, etc.) involved. In order to decrease the overall cost of the optimization process, parallel algorithm, reduced-order models, or their combinations are an economical and efficient option.

The main goal of this special issue is to bring together theoretical, numerical, and experimental contributions that describe original research results and/or innovative concepts that address all aspects of complex engineering optimization problems. In this issue we received 62 paper submissions and finally 30 original research papers on the frontier of high-performance computing strategies were accepted for publication based on critical peer-review process. This issue covers a wide range of topics in solid mechanics, thermodynamics, fluid mechanics, and advanced computing or optimization methods. We hope that these topics could be continued to track the updated trends year by year.

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